

### REMARKS

The Office Action mailed May 14, 2003 has been carefully reviewed and the foregoing amendment and the following remarks are made in consequence thereof.

Claims 1- 20 are now pending in this application. Claims 1-5 are allowed. Claims 6 and 11-20 stand rejected. Claims 7-10 are objected to.

The rejection of Claims 11-20 under 35 U.S.C. § 112, second paragraph is respectfully traversed. Claims 11, 16, and 18 have been amended to address the issues noted in the Office Action. Specifically, Claims 11, 16, and 18 have been amended to include cooperative structural relationships between claim elements. Claims 12-15 appear to have been rejected due to their dependency from independent Claim 11, Claim 17 appears to have been rejected due to its dependency from independent Claim 16, and Claims 19 and 20 appear to have been rejected due to their dependency from independent Claim 18. Accordingly, for at least the reasons set forth above, Applicant respectfully requests that the Section 112 rejections of Claims 11-20 be withdrawn.

The rejection of Claim 6 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,671,728 (Day et al.) is respectfully traversed.

Day et al. describe an electronic servo system that includes a synchro transmitter 11 and a three wire to two wire converter 35, which receives three stator outputs from synchro transmitter 11 and converts the angular information from synchro transmitter 11 into sine and cosine signals related to the angular position of the rotor of the synchro transmitter 11.

Claim 6 recites an interface circuit for interfacing with a motor control circuit “including a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit, said interface circuit comprising a three-wire to two-wire interface comprising a second input circuit that includes an input configured to receive an output of said first input circuit and an output configured to transmit inputs to a microcontroller to control a motor, said second input circuit electrically equivalent to the first input circuit of the motor control circuit.”

Day et al. do not describe nor suggest an interface circuit for interfacing with a motor control circuit that includes a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit wherein the interface circuit includes a three-wire to two-wire interface that includes a second input circuit that includes an input configured to receive an output of the first input circuit and an output configured to transmit inputs to a microcontroller to control a motor, the second input circuit electrically equivalent to the first input circuit of the motor control circuit. Specifically, Day et al. do not describe nor suggest a first input circuit comprising an input coupled to a two wire bi-directional interface. Rather, Day et al. describe an output circuit that includes a three wire to two wire converter, which receives three stator outputs from a synchro transmitter. Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Day et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claim 6 be withdrawn.

The rejection of Claims 1, 2, and 6 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,705,344 (Esen) is respectfully traversed.

Esen describes an electronic circuit 10, 11 for converting three-wire synchro-type amplitude modulated carrier frequency signals to an equivalent two-wire constant amplitude variable phase signal  $e_o$ . The circuit includes a constant amplitude variable phase circuit 10 and a frequency compensation circuit 11. Constant amplitude variable phase circuit 10 includes a synchro transmitter 12,  $s_1$ ,  $s_2$ ,  $s_3$  and an operational amplifier 13. Frequency compensation circuit 11 includes a divider 14, two AC-DC converters 16, 18, a variable resistor  $R_o$  and a comparator 17. Resistance of  $R_o$  is varied depending on a synchro transmitter carrier frequency to maintain a constant amplitude variable phase relationship.

Claim 6 recites an interface circuit for interfacing with a motor control circuit "including a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit, said interface circuit comprising a three-wire to two-wire interface comprising a second input circuit that includes an input configured to receive an output of said first input circuit and an output configured to transmit inputs to a

microcontroller to control a motor, said second input circuit electrically equivalent to the first input circuit of the motor control circuit.”

Espen does not describe nor suggest an interface circuit for interfacing with a motor control circuit that includes a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit wherein the interface circuit includes a three-wire to two-wire interface that includes a second input circuit that includes an input configured to receive an output of the first input circuit and an output configured to transmit inputs to a microcontroller to control a motor, the second input circuit electrically equivalent to the first input circuit of the motor control circuit. Specifically, Espen does not describe nor suggest a first input circuit comprising an input coupled to a two wire bi-directional interface. Rather, Espen describes a frequency compensation circuit that receives one input through a divider and an AC-DC converter, receives another input directly into a second AC-DC converter, the outputs of the AC-DC converters are combined in a comparator. The output of the comparator is applied to the gate of a JFET in a variable resistance circuit. Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Espen

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claim 6 be withdrawn.

The rejection of Claim 6 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,493,737 (Edelson) is respectfully traversed.

Edelson describes an angle resolution system that includes an angle position sensor 11, a synchro transmitter 15, control transformer 25, a pair of demodulators 37, 39 and a reference signal source 41. Angular changes of the position of sensor 11 are transmitted to the stator of control transformer 25 via the stator windings of synchro transmitter 15. The output of synchro transmitter sine windings 33 and cosine windings 35 are applied to phase sensitive demodulators 37 and 39 respectively. The outputs of demodulators 37 and 39 are applied to input terminals 43 and 45, respectively, of function stabilizer 47, which compensates for amplitude variations of the sine and cosine signals due to changes in the reference voltage or the effects of load variations.

Claim 6 recites an interface circuit for interfacing with a motor control circuit “including a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit, said interface circuit comprising a three-wire to two-wire interface comprising a second input circuit that includes an input configured to receive an output of said first input circuit and an output configured to transmit inputs to a microcontroller to control a motor, said second input circuit electrically equivalent to the first input circuit of the motor control circuit.”

Edelson does not describe nor suggest an interface circuit for interfacing with a motor control circuit that includes a first input circuit comprising an input coupled to a two wire bi-directional interface and an output configured to couple to at least one of an input of a second input circuit and an input of an output circuit wherein the interface circuit includes a three-wire to two-wire interface that includes a second input circuit that includes an input configured to receive an output of the first input circuit and an output configured to transmit inputs to a microcontroller to control a motor, the second input circuit electrically equivalent to the first input circuit of the motor control circuit. Specifically, Edelson does not describe nor suggest a first input circuit comprising an input coupled to a two wire bi-directional interface. Rather, Edelson describes a function stabilizer circuit that cancels out the effects of voltage changes on sine and cosine information signals such that the signals are independent of reference and/or system voltage changes. Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Edelson.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claim 6 be withdrawn.

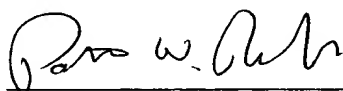
Claims 7-10 were objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 7-10 depend, directly or indirectly, from independent Claim 6 which is submitted to be in condition for allowance. When the recitations of Claims 7-10 are considered in combination with the recitations of Claim 6, Applicants submit that dependent Claims 7-10 are also in condition for allowance.

For at least the reasons set forth above, Applicants respectfully request that the objection to Claims 7-10 be withdrawn.

Claims 11-20 were indicated as being allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in the office action. Claims 12-15 depend from Claim 11, which has been amended to address the issues noted in the Office Action and is submitted to be in condition for allowance. When the recitations of Claims 12-15 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 12-15 likewise are in condition for allowance. Claim 17 depends from Claim 16, which has been amended to address the issues noted in the Office Action and is submitted to be in condition for allowance. When the recitations of Claim 17 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claim 17 likewise is in condition for allowance. Claims 19-20 depend from Claim 18, which has been amended to address the issues noted in the Office Action and is submitted to be in condition for allowance. When the recitations of Claims 19-20 are considered in combination with the recitations of Claim 18, Applicants submit that dependent Claims 19-20 likewise are in condition for allowance.

In view of the foregoing remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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